

Water Quality Report

Annual Consumer
Confidence Report
June 2018

Sherman Hogue/Explore Fairbanks



DOYON UTILITIES LLC

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Office: 907-338-3600
Public Water System ID# 2212039



Joint Base Elmendorf-Richardson

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JBER's Drinking Water Mission

A water utility seldom takes the opportunity to tell its customers about all they are doing to produce exceptional quality drinking water in conjunction with the myriad of additional things the utility does to ensure public safety. All too often, we concentrate only on our mission of producing water that goes through a rigorous testing and quality control process before being introduced into a water distribution system for customers. Beyond that, we don't broadcast what we are doing. In essence, we fail to "toot our own horn."

The Environmental Protection Agency (EPA) and the Alaska Department of Environmental Conservation (ADEC) have given us an opportunity to tell the rest of our story in the form of this annual Consumer Confidence Report. Doyon Utilities and 673d Bioenvironmental Engineering are pleased to jointly prepare this comprehensive report for our customers who work and reside on JBER. Our goals and efforts have been closely coordinated with the environmental staff from both JBER and DU to provide you with a complete picture of the water quality program.

As you will clearly see from the report, the water you consume is of exceptional quality and exceeds the standards established by the US Environmental Protection Agency.

Who are we?

While there are two Public Water Systems on JBER, the two systems are connected and in essence operate as a continuous system from the water plant to the consumer. The commonality of the two systems allows us to efficiently operate as a team in order to serve our most deserving customers; the military personnel and civilian employees assigned to the joint installation. This report will

provide many technical aspects of our water quality but just as importantly, it will allow us an opportunity to let you know some of the work going on behind the scenes.

Doyon Utilities owns and operates utilities located on the Richardson side of JBER. This relationship was initially established through a Utility Privatization Contract with the Army at the former Ft. Richardson and later expanded due to the

joint basing action that consolidated Ft. Richardson and Elmendorf AFB to become JBER. As the water purveyor on the Richardson side, Doyon manages the water plant and distribution lines, while conducting a myriad of bacteriological and chemical tests to ensure all quality standards are met.

Once the water reaches the Elmendorf side, the 673d Civil Engineer Group (CEG) and 673d Medical Group (MDG) Bioenvironmental Engineering flight take over. CEG provides distribution system oversight, while Bioenvironmental Engineering monitors water quality. This includes additional testing of the system for bacteriological contamination, with each major loop and/or population area sampled at least once per month.

Additionally, several select chemical contaminants are re-sampled to verify results seen on JBER, as required by the State of Alaska. The

results of Bioenvironmental Engineering's samples, in conjunction with those obtained by Doyon Utilities, are used to ensure basewide water quality.

In order to ensure long term reliability of the water source, we have conducted assessment studies to determine areas where we need to focus our resources. Our water treatment plant receives continuous oversight of the drinking water it produces. The quality of water you drink is superb and our standards will not be compromised. Testing results from 2017 are included in this report and from the data, you can be confident that the dedicated staff of highly qualified and

state-certified professional water treatment operators will protect the integrity and quality of your drinking water. After all, our reputation is only as good as the quality of water we produce and we value that reputation!

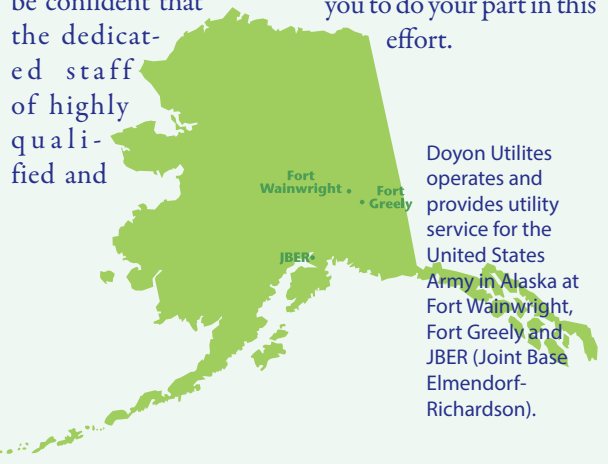
We are proud to be partners in preparation and publication of this annual Consumer Confidence Report and welcome any suggestions on how to make it more informative in the future. As a side note, we encourage you to use the water you need but don't needlessly use water. Conservation of any resource is important and we ask you to do your part in this effort.

Water System Upgrade

Doyon Utilities, in conjunction with Joint Base Elmendorf-Richardson's 673rd Air Base Wing, is planning a substantial renovation and upgrade of the installation's water treatment and storage system. The Arctic Valley water treatment plant will receive a multi-million dollar infrastructure upgrade to increase the base's water storage capability, followed by a renewal and replacement plan to refurbish and upgrade the plant's interior.

The water treatment plant was originally constructed in 1952 and is the primary source of treated water for JBER. Water from the reservoir behind a dam on Ship Creek is piped to the plant, where it is treated before being distributed throughout the joint base. The installation of the two additional storage tanks known as clearwells and other plant upgrades are the next phase in a series of improvements to the base's utilities. The new clearwells will add three million gallons of treated water storage for the installation. One of the clearwells

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Doyon Utilities operates and provides utility service for the United States Army in Alaska at Fort Wainwright, Fort Greely and JBER (Joint Base Elmendorf-Richardson).

Where does our water come from?

JBER's drinking water is obtained from surface-water drainage and three local wells on JBER. Large debris is removed from the raw surface-water prior to it entering the treatment plant where it undergoes several conventional water treatment processes.



The plant is designed to produce approximately 7 million gallons of water per day – enough to fill over 8 Olympic competition-size pools! All of our treatment processes are controlled and monitored by an interconnected set of computers. Because ground-water is a very high quality source of raw water, the only treatment necessary is disinfection. Each well is equipped with its own in-line chlorination equipment to ensure that water enters the distribution system free from any microbial contamination. The finished water is tested several times a day to ensure that pH, chlorine residuals, and fluoride are at appropriate levels.

Doyon Utilities tests the finished water several times a day.

Water System Upgrade continued

is scheduled to be completed in mid-2019, with the remainder of the project continuing into 2020.

As Doyon Utilities' engineers and water treatment specialists prepared for the upgrade, sampling of paint and materials to be disturbed during construction process was conducted. This survey revealed polychlorinated biphenyls, commonly known as PCBs, in paint throughout the building.

Current and historical sampling data has shown no trace of PCBs in JBER's drinking water. DU is working with both the Alaska Department of Environmental Conservation and the United States Environmental Protection Agency to ensure this issue is appropriately addressed. To date, all drinking water samples collected specifically for PCB contamination have returned negative or non-detect for PCBs.

Water Testing and Your Health

The sources of drinking water (both tap and bottled) include rivers, lakes, ponds, reservoirs, springs and wells. As water travels over the surface of the land or underground, it can dissolve naturally occurring minerals. In some cases, water can pick up radioactive material, or substances resulting from the presence of animals or human activity.

Although our water supply may contain some of these contaminants, it is important to know that these substances are either removed completely or reduced to a safe level before it arrives at your tap.

Contaminants that may be present in source water include:

- Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment facilities, septic systems, agricultural livestock operations and wildlife.
- Inorganic Contaminants, such as salts and metals, which may naturally occur or result from urban storm water runoff, industrial or domestic wastewater discharge, oil and gas production or farming.
- Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic Contaminants, including synthetic and volatile organic compounds, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban storm water runoff and septic systems.

- Radioactive Contaminants, which may occur naturally or result from oil and gas production and mining activities.

In order to ensure tap water is safe to drink, the EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Some people in the general population may be more vulnerable than others to contaminants in drinking water. Immuno-compromised persons such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, persons with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk of infection. These people should seek advice about drinking water from their health care providers. EPA/CDC published guidelines on appropriate means to lessen the risk of infection are available from the Safe Drinking Water Hotline (800-426-4791).

We're happy to answer any other questions about our water quality. For general information or for water quality questions call Doyon Utilities site management office at 907-338-3600 or JBER Bioenvironmental Engineering at 907-384-3985.

Other Resources: Environmental Protection Agency's Safe Drinking Water Hotline: 1-800-426-4791. Water Quality Data for community water systems throughout the United States is available at www.waterdata.com.



Drinking Water Test Results

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water hotline at 1-800-426-4791.

The table lists the Regulated Contaminants required to be monitored by the EPA that were detected in your water. While most monitoring is required annually, some contaminants are sampled less frequently. The Stage 2 Disinfection By-Product Rule requires testing for trihalomethanes and haloacetic acids at locations in the distribution system that produces the highest concentration of these two categories of compounds.

This sampling was done quarterly in 2017. All the substances found were present in quantities less than the EPA's limits for safe drinking water. If you would like to view a complete listing of test results, please call JBER Bioenvironmental Engineering at 907-384-3985 or DU Environmental at 907-455-1500.

Substance	Sample Date	Violation Y/N	Detected Range JBER-R <small>PWS 2212039</small>	Detected Range JBER-E <small>PWS 2211423</small>	MCL	MCLG	Potential Source of Contamination
Microbiological Contaminants							
Coliform Bacteria	Monthly 2017 All Samples Passed	N	None Detected	None Detected	Two or more positive samples/month	0	Naturally present in the environment
Turbidity	Daily 2017	N	Highest single measurement 0.17 NTU 100% of samples <0.3 NTU	Tested by JBER-R	TT = 1 NTU TT = % of samples <0.3 NTU	N/A	Soil Run-off
Cryptosporidium (raw water)	Monthly 2017	N	Average 0.00 oocysts/L	Tested by JBER-R	TT for determination	0	Naturally present in the environment
Inorganic Contaminants							
Fluoride	Daily 2017	N	0.00 - 1.42 ppm	Tested by JBER-R	4 ppm	4 ppm	Chemical Additive
Nitrate Bldg 28004 Bldg 35610 (Well 1) Bldg 35620 (Well 2) Bldg 35630 (Well 3)	Annually 1/3/17 1/3/17 1/9/17 1/3/17	N	0.31 ppm 0.53 ppm 0.52 ppm 0.57 ppm	Tested by JBER-R	10 ppm	10 ppm	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Bldg 32433 (Golf Course) Bldg 4414 (Munitions) Bldg 23400 (Hillberg Ski)	Annually 1/31/17	N	Tested by JBER-E	<0.10 ppm <0.10 ppm <0.10 ppm	10 ppm	10 ppm	
Barium Bldg 28004 Bldg 35610 (Well 1) Bldg 35620 (Well 2) Bldg 35630 (Well 3)	Every 9 years 4/11/16 3/29/16 3/29/16 3/29/16	N	0.007 ppm 0.0055 ppm 0.0037 ppm 0.0044 ppm	Tested by JBER-R	2 ppm	2 ppm	
Chromium Bldg 35610 (Well 1) Bldg 35620 (Well 2) Bldg 35630 (Well 3)	Every 9 years 3/29/16 3/29/16 3/29/16	N	0.0015 ppm 0.0013 ppm 0.0017 ppm	Tested by JBER-R	0.1ppm	0.1 ppm	
Nickel Bldg 35610 (Well 1)	Every 9 years 3/29/16	N	1.1 ppm	Tested by JBER-R	—	—	Naturally-occurring, urban stormwater runoff, wastewater discharges, oil and gas production, mining or farming
Asbestos	Every 9 years 2/25/14 11/18/14	N	<0.115 µm	<0.119 µm	7 MFL	7 MFL	Decay of asbestos-cement water mains; Erosion of natural deposits

Substance	Sample Date	Violation Y/N	Detected Range JBER-R PWS 2212039	Detected Range JBER-E PWS 2211423	MCL	MCLG	Potential Source of Contamination
Inorganic Contaminants (continued)							
Free Residual Chlorine	Daily 2017	N	0.20 - 2.23 ppm	0.2-3.2 ppm	MRDL 4 ppm	MRDLG 4 ppm	Water additive used to control microbes
Lead ¹	Every 3 years	N	90th Percentile <1.0 ppb June 2015	90th Percentile <1.0 ppb July 2016	AL=15 ppb	0	Corrosion of household plumbing systems
Copper ¹	Every 3 years	N	90th Percentile 0.0265 ppm June 15	90th Percentile 0.0929 ppm June 2016	AL=1.3 ppm	1.3 ppm	Corrosion of household plumbing system
¹ Samples were obtained from numerous locations, the 90th percentile for lead and copper were below EPA actions levels (AL). For a complete list of sites contact JBER Bioenvironmental at 907-384-3985 or DU Environmental at 907-455-1500							
Organic Containants							
Total Organic Carbon	Monthly 2017	N	Raw Water Range <0.50-4.69 ppm Treated Water Range <0.50-2.40 ppm	Tested by JBER-R	TT	TT	Naturally present in the environment
Total Trihalomethanes Bldg 560 (AAFES Gas) Bldg 986	Samples taken Quarterly 2017	N	Average 17.8 ppb Range 1.2 - 36.9 ppb	—	80 ppb	NA	By-product of drinking water chlorination
Bldg 18220 (381st Intel) Bldg 5091 (Family CC)	Samples taken Quarterly 2017	N	—	Average 9.38 ppb Range 2.4 - 17 ppb	80 ppb	NA	
Total Haloacetic Acids Bldg 560 (AAFES Gas) Bldg 986	Samples taken Quarterly 2017	N	Average 17.3 ppb Range 1.2 - 30.4 ppb	—	60 ppb	NA	By-product of drinking water chlorination
Bldg 18220 (381st Intel) Bldg 5091 (Family CC)	Samples taken Quarterly 2017	N	—	Average 12.83 ppb Range 7.2 - 24 ppb	60 ppb	NA	
Synthetic Organic Chemicals (SOC)							
Di (2-ethylhexyl phthalate	Every 3 years Sample date 2015	N	Highest reported level 0.7 ppb Range <0.6 ppb - 0.7	Tested by JBER-R	6 ppb	0	Discharge from rubber and chemical factories
Radionuclides							
Gross Alpha Bldg 28004 Bldg 35610 (Well 1) Bldg 35620 (Well 2) Bldg 35630 (Well 3)	Every 9 years 4/11/16 3/29/16 3/29/16 3/29/16	N	Highest reported level 0.83 ± 1.87 pCi/L 1.1 ± 1.9 pCi/L 1.8 ± 1.7 pCi/L 0.96 ± 1.93 pCi/L	Tested by JBER-R	15 pCi/L	0	Erosion of natural deposits
Combined radium (226, 228) Bldg 28004 Bldg 35610 (Well 1) Bldg 35620 (Well 2) Bldg 35630 (Well 3)	Every 9 years 4/11/16 3/29/16 3/29/16 3/29/16	N	Highest reported level 1.40 ± 0.57 pCi/L 0.00 pCi/L 4.00 ± 0.63 pCi/L 0.53 ± 0.41 pCi/L	Tested by JBER-R	5 pCi/L	0	Erosion of natural deposits

JBER takes weekly water quality samples as well as additional samples during every line break. Be assured Bioenvironmental Engineering and Doyon Utilities make every effort to ensure the water provided to JBER is safe for consumption and the installation is notified should water quality deteriorate.

Some residents may experience brown or rusty water coming from their faucets; more often in older housing. This is usually caused by a higher concentration of minerals in the water. This

does not mean that the water is not safe. Any brown or rusty water that does not run clear after running faucets for several minutes should be reported to housing maintenance.

Another common occurrence is white cloudy water. This is due to more oxygen in the water and most often noticed during colder months. Any cloudy water that does not clear up after sitting for a couple minutes should be reported to housing maintenance.



Lead/Copper in Drinking Water

The EPA Safe Drinking Water Act requires public water systems to test water samples from its customers to determine lead and copper levels. If present, elevated levels of lead can cause serious health problems, especially in pregnant women and young children.

Lead and Copper samples were collected at numerous locations on JBER-R during June 2015, and at JBER-E during June and July 2016. During both sampling events the 90th percentiles were below the EPA Action Levels.

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. There is nothing in the treatment process that would introduce lead into the water; therefore, the water is tested at the individual service locations. If abnormal levels of lead or copper are detected in the water supply, residents will be notified and JBER will initiate action to correct the problem.

One method to minimize the risk of lead or copper contamination is to let the tap water run for 30 seconds to two minutes to flush any water that has been sitting for several hours.

It is important to use this approach for drinking water or cooking water. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Terms and Abbreviations Used

Action Level (AL): The concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

JBER-E: Joint Base Elmendorf Richardson – Elmendorf side. Public Water System (PWS) 2211423

JBER-R: Joint Base Elmendorf Richardson – Richardson side. Public Water System (PWS) 2212039

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available technology.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which, there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant

allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

MFL: Million fibers per liter >10 µm

mrem/yr: Millirems per year.

Nephelometric Turbidity Units (NTU): The unit of measurement for turbidity samples.

Not Applicable (NA): When NA is used in the range column, only one sample was taken, therefore, no range exists.

Not Detectable (ND): The contaminant is below the detectable limits of the testing method.

Oocysts: A hardy, thick-walled spore Organisms that create oocysts include *Cryptosporidium*.

pCi/L: Picocuries per liter.

ppb: Parts per billion or micrograms per liter.

ppm: Parts per million or milligrams per liter.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

This Consumer Confidence Report summarizes drinking water quality for the period between January 1, 2017 and December 31, 2017. In order to conserve natural resources and make it more efficient to distribute an electronic copy can be downloaded at www.doyonutilities.com or www.jber.af.mil. Hardcopies are also available at Doyon Utilities or by contacting DU Environmental at 907-455-1500.

Water System Maintenance

During times of maintenance, the water may appear hazy or have a slight color at the consumer tap. If this condition occurs, run several faucets until the water is clear. Additionally, maintenance activities may result in lower than normal pressure. This usually occurs during fire hydrant flow testing and water main flushing. Larger, more complex system maintenance or repair activities may require the utility to lower all pressure within small areas of the water distribution network. As a result, utilities may issue a boil water notice to its customers. These notices are usually issued out of an abundance of caution by the water supplier to ensure the public health is protected. It is important for the customer to read and follow the directions within the boil water notice. Contact JBER Bioenvironmental Engineering at 907-384-3985 for more information.



Source Water Assessment

A Source Water Assessment has been completed for all of the JBER-Richardson's drinking water sources. These include the waters of Ship Creek and three ground water wells located on JBER-R. The overall vulnerability for Ship Creek to become contaminated is medium for bacteria and viruses, nitrates and/or nitrites, heavy metals, volatile organic chemicals, synthetic organic chemicals, and other organic chemicals.

The overall vulnerability for Wells No. 1 and No. 2 to become contaminated is medium for synthetic organic chemicals, and low for bacteria, viruses nitrates and/or nitrites, heavy metals, volatile organic chemicals, cyanide, and other organic chemicals. The overall vulnerability of Well No. 3 to become contaminated is medium for bacteria and viruses, nitrates and/or nitrites, heavy metals, volatile organic chemicals, synthetic organic chemicals, and other organic chemicals.

The assessment of contaminant risks for these water sources can be used as a foundation for local voluntary protection efforts, as well as, a basis for the continuous efforts on the parts of Doyon Utilities and Joint Base Elmendorf Richardson to protect public health. It is anticipated that Source Water Assessments will be updated every five years to reflect any change in the vulnerability or susceptibility of these drinking water sources.

